Sessional Paper No. 9/1943.

COLONY OF THE GAMBIA.

ANNUAL MEDICAL AND SANITARY REPORT FOR THE YEAR ENDED 31st DECEMBER, 1942.

I. ADMINISTRATION.

A. Staff.

1. Dr. C. Wilson was transferred to Nigeria on the 21st May, 1942.

Miss. K. Storrier was transferred to Gold Coast.

Mr. H. Archibald was seconded to the Gambia on the 7th October, 1942.

Miss. E. H. Claydon was transferred to the Gambia on the 10th February, 1942.

B. Financial.

2. Medical and Health Services.

	Estimated.	Actual.			Increase.			Decrease.		
	£	£	s.	d.	£	s.	d.	£	s,	d.
Revenue ...	3,345	6,051	8	8	2,706	8	8		—	
Expenditure	35,745	43,809	14	7	8,064	14	7		—	

Miscellaneous Services.

	Estimated.	Actual.	Increase.	Decrease.
	£	£	£	£
Contributions to Medical Associations and Schools	180	180	—	—

Colony.

	Estimated.	Actual.		
	£	£	s.	d.
Total Revenue	159,238	407,752	15	0
Total Expenditure ...	218,245	295,310	18	9

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C. 146

3. The actual expenditure on Medical and Health Services was 14.8% of the total expenditure of the Colony.

II. PUBLIC HEALTH.

A. General Remarks.

4. The third year of the war was a very difficult one for Medical and Health Services in the Gambia.

5. Kiaff Dispensary was again closed for three months in the wet season.

6. Bwiam Hospital had to be closed as a hospital but continued to function as a dispensary for three months during the wet season.

7. The general health of the population particularly in Bathurst deteriorated throughout the year. This is attributable to the vicious circle set up by war conditions—overcrowding, malnutrition, malaria.

8. The work of the hospitals is summarised as follows:—

	1941.		1942.	
	Cases.	Deaths.	Cases.	Deaths.
In-Patients ...	1,730	171	1,815	185
Out-Patients ...	32,933	—	42,411	—

9. The work at the dispensaries again shows an increase.

	1941.	1942.
Out-Patients	19,756	26,643

10. A table showing causes of morbidity is given as in Appendix.

B. Communicable Diseases.

11. *Trypanosomiasis.*—1,272 cases were treated at hospitals. A further 615 cases were treated at the nine dispensaries. A further 183 cases were treated by a combined Army and Civil team working on Trypanosomiasis survey in North and South Bank

Provinces. An extract of the Report by Captain MacGowan, R.A.M.C., who was in charge of the survey, is attached as Appendix II.

12. *Malaria.*—Total number of cases, 3,616. The seriousness of malaria is emphasized in the Report of Infantile Mortality by Dr. Horn, a summary of which is attached in Appendix III.

13. *Venereal Disease.*—There were 1,576 cases treated.

C. VITAL STATISTICS.

1. GENERAL AFRICAN POPULATION.

14. These figures are for Bathurst only:—

Estimated population	14,900 approximately
Births (Live)	490
Total deaths	591
Total still births	66
Deaths under one year	77
Birth rate	37·31 per 1,000
Death rate	39·66 per 1,000
Infantile Mortality rate	157·14 per 1,000 live births
Still birth rate	134·69 per 1,000 live births.

15. The cause of the increased Infantile Mortality which was noted in the Annual Report for 1941 and which has now fallen in 1942 was the subject of an investigation by Dr. Horn. A summary of his report is attached as Appendix III.

16. The main causes of death in Bathurst were:—

Diseases of the respiratory system	146
Infectious and parasitic diseases excluding malaria	106
Malaria	66
Diseases of the circulatory system	54
Venereal diseases	Nil.
Non-venereal diseases of the genito-urinary system and annexa	19
Diseases of the nervous system and sense organs	43
Affections due to violence	21
Rheumatism, diseases of nutrition and endocrine glands and other general diseases	35
Other diseases	28
Total	518

D. Training of Personnel.

17. Training of personnel has been carried on with difficulty owing to shortage of staff. The usual lectures were given by the Sisters and by the Chief Dispenser. One member of the Staff was sent to Lagos with a scholarship for training as Laboratory Assistant. It is hoped that one dispenser will be able to be sent there for training next year.

III. HYGIENE AND SANITATION.

A. Preventive Measures.

18. *Yellow Fever.*—128 inoculations against Yellow Fever were done. Compulsory inoculation Ordinance was passed.

19. *Trypanosomiasis.*—Survey by Captain MacGowan has been referred to and is summarised in Appendix II.

20. *Malaria.*—The influx of a large number of a susceptible population into an overcrowded and hyper-endemic malaria area has had the natural result of increasing the malarial problem. Malaria has been and remains our greatest and most difficult hygienic problem. Major Daly, the Area Malariologist is working in close co-operation with civil authorities. His main work is in connection with malarial control of the aerodrome areas, but as these are inseparable from the surrounding countryside his researches will be of the utmost value to future developments. It is hoped that detailed schemes will be available by the end of 1943.

Anti-malarial work in all aerodrome sites and also in a large area of the town of Bathurst has been taken over by Royal Air Force and work has proceeded in close co-operation with civil authorities.

Reclamation of swamp areas at Kuntaur, the most important river port, were commenced under Mr. Archibald's supervision.

21. *Small-pox.*—5,031 vaccinations were done.

22. *Dysentry.*—Conditions remain the same. The difficulties experienced in maintaining sanitation have been stressed. The position is unsatisfactory.

23. *Cerebrospinal fever.*—24 cases of Cerebrospinal fever were reported with seven deaths. It did not assume epidemic proportions and local out-breaks were quickly controlled.

B. General Measures.

24. *Sewage and Refuse Disposal.*—General sanitation in Bathurst has proved a very difficult problem. The overcrowding of the town has meant a vast increase in the work. The transport problem has been exceedingly difficult and, through lack of transport, clearance has been unsatisfactory. Shortage of pails and of labour has increased difficulties of sewage disposal. A jetty for improving night soil disposal was completed. A new septic tank latrine was completed and has been working satisfactorily. This experiment may be the solution of the sewage problem in Bathurst after the war.

25. The rainfall in Bathurst was 46.09 inches during the year.

C. School Hygiene.

26. Owing to shortage of staff full inspection of all School Children was not carried out. A start was made in the regular examination by an Opthalmologist from R.A.M.C. of eye conditions in School Children. His report is awaited with interest.

D. Housing.

27. The most important development in the Protectorate has been the layout and new housing for villages removed for anti-amaryl purposes. The opportunity was taken to rebuild the villages complete to an approved layout and with approved types of houses. It is expected that removal will be completed in 1943.

Rural Sanitary sites are being provided and it is hoped that these model villages will be a powerful influence in improving Rural Housing and sanitation generally. The Rural Sanitary Units in various parts of the Protectorate have continued to work well.

28. The Protectorate Building Regulation have at last been approved and came into force as from 1st January, 1943.

29. The development of Churchill Town as a residential suburb of Bathurst has proceeded very slowly.

30. A Committee to draw up plans for the future of a portion of Kombo St. Mary was appointed. The report of the Committee has since been published.

E. Nutrition.

31. The influx of population placed a strain on the food resources of the Gambia that it was unable to bear. The Gambia

was never self supporting but before the war there was no marked evidence of mal-nutrition. In fact, conditions were rapidly improving owing to the great increase in market gardening and utilization of dry season vegetable crops. Dr. Wilson's report on nutrition in the Gambia in 1940 is evidence of this. The supplies of meat, fish, fruit and vegetables, however, were insufficient to meet the new demands and the effect both of lack of quantity and quality made itself very obvious in the wet season—August to October, 1942. There was definite evidence of both protein and vitamin deficiency in both European and African. A report by Brigadier Findlay on Nutrition conditions both in Army and Civilian population was made after a short survey of conditions here. A small team from 55th General Hospital is now helping in a more detailed survey of children in Bakau village. Schemes for assisted feeding of children are in preparation. There has been also shortage of staple food reserves. The African depends largely on imported rice which has not been forthcoming and he has not taken kindly to a change over to cassava and maize. Developments in increased local production are encouraging for the future but did not contribute to conditions this year. Signs are evident now, however, of a great improvement and fresh vegetables, meat and fish are appearing in quantity.

IV. PORT HEALTH WORK AND ADMINISTRATION AND AEROPLANE TRAFFIC.

32. For security reason the number of ships and aeroplanes boarded during the year is not given.

33. The number of rats destroyed were 5,488. The number of rats examined were 918. No cases of plague were found.

V. MATERNITY AND CHILD WELFARE.

34. The Maternity Hospital and Welfare Clinics continued to give good service.

Maternity Hospital :—

Number of patients admitted to hospital ...	292
Total births	287
Maternity Mortality	4
Tetanus neonatorum	Nil.
Opthalmia neonatorum	Nil.

Clinics :—

	Infant Welfare.	Ante-natal.
Total attendances ...	12,621	3,548

VI. PLANS FOR 1943.

35. Finally, work for next year is planned as follows:—

(*a*) Routine medical and health services.

(*b*) Development of Churchill Town and completion of rebuilding of villages moved for anti-amaryl reasons.

(*c*) Continuance of anti-malarial surveys.

(*d*) Completion of investigation into eye conditions in school children.

(*e*) Improvement of Nutrition especially in children and Nursing Mothers.

(*f*) Development of clinics in connection with (*e*).

(*g*) Start of Health Centre at Basse.

(*h*) Implementing findings in Dr. Horn's report.

(*i*) Further development of trypanosomiasis treatment centres.

L. H. THOMAS,
Acting Senior Medical Officer.

APPENDIX I.

TABLE SHOWING DISEASE GROUPS TREATED IN GOVERNMENT HOSPITALS AND DISPENSARIES, 1942 IN-PATIENTS.

	Total cases treated.
Total	1,815
Diseases of digestive system	297
Diseases of the skin and cellular tissues	349
Non-Venereal diseases of the genito-urinary system and annexa	159
Diseases of the respiratory system	160
Venereal diseases	28
Malaria	302
Infectious and parasitic diseases (excluding venereal diseases and malaria)	149
Diseases of the circulatory system	39
Diseases of the nervous system and sense organs	22
Diseases of the bones and organs of locomotion	61
Other diseases	197
Cancers and other tumours	13
Rheumatism, diseases of nutrition and endocrine glands and other general diseases	9
Diseases of pregnancy, child birth, and puerperal state	19
Ill-defined diseases	11

OUT-PATIENTS.

	Total cases treated.
Total	69,054
Diseases of the digestive system	12,681
Diseases of the respiratory system	6,395
Diseases of the skin and cellular tissues	20,885
Infectious and parasitic diseases (excluding venereal diseases and malaria)	3,490
Rheumatism, diseases of nutrition and endocrine glands and other general diseases	10,697
Affections due to violence	2,812
Malaria	3,314
Diseases of the nervous system and sense organs	4,065
Non-Venereal diseases of the genito-urinary system and annexa	1,726
Venereal diseases	1,548
Diseases of the bones and organs of locomotion	1,081
Other diseases	360

APPENDIX II.

EXTRACT FROM CAPTAIN MACGOWAN'S REPORT ON GAMBIA SLEEPING SICKNESS SURVEY, UNDERTAKEN WITH THE PERMISSION OF D.DM.S., WEST AFRICAN FORCES.

North Bank Survey—Civilians.

Village.	Total Examined.	Glands Punctured.	Tryps. Found.	I. R.	Bowesman 1939.
*Barra ...	175	11	4	2·3%	—
*Essau ...	290	28	4	1·4%	2%
*Kerewan ...	746	81	7	0·9%	6·9%
Kintykunda ...	334	51	3	0·9%	2·4%
Swarrahkunda ...	255	32	9	3·6%	—
Toro ...	96	9	1	1·1%	—
Jawarra ...	278	41	7	2·5%	5·0%
Saba ...	257	29	1	0·4%	2·0%
Gunjur ...	266	66	0	Nil.	—
Banni ...	225	33	2	0·9%	—
Salikene ...	238	43	1	0·4%	3·1%
Odd cases from other villages ...	—	—	4	—	—
Total	3,160	424	43	1·4%	4·2%

Comments on Survey Findings.

The most striking feature was the marked fall in the infection rate in the Kerewan area from the figures shown by Bowesman in 1939. (For Lower Baddibu, the present survey found the infection Rate to be only ⅓ of that found by Bowesman, 1.4% against 4.2%). This was especially seen in the case of Kerewan itself, where the infection rate was found to be only one-seventh of that found by Bowesman (*See* Table). There was a corresponding reduction in the infection rates of Kintykunda and Jawarra, where comparable figures were available. This was the only district which differed markedly in I.R. figures from those of Bowesman. in the South Bank the infection rates were roughly equal.

The low infection rate in Lower Baddibu may be accounted for by the following factors:

(1) The treatment of sleeping sickness cases at Kerewan civil dispensary. This dispensary has been working for 3—4 years, and during that time several hundred cases of trypanosomiasis

have been treated there, most of the cases coming from a radius of about 20 miles round Kerewan, especially from the Jokadu district to the West, on the opposite side of the Mini Ninium Bolon from Kerewan. The African dispenser, of course, relied mostly on the patient's history for diagnosis, as there were no facilities for the diagnosis by microscopic examination of blood or glands, and therefore some of the cases treated would not be true trypanosomiasis. I checked many of the cases so treated, however, and was of the opinion that about 70% of the diagnoses were correct. This steady treatment during these three years may have been one of the factors causing the fall in the infection rate, although on the South Bank, around Bwiam Hospital, similar conditions existed for treatment, yet the incidence of trypanosomiasis here was as high if not higher than that found by Bowesman. The reason for this is that, in a highly infected area, for every one infected person who comes voluntarily for treatment, there are at least six who do not come, and have either native medicine (excision of cervical glands) or no treatment at all. All these untreated persons therefore keep up the infection rate and cause spread of the infection. It is apparent, therefore, that if trypanosomiasis is to be stamped out of a district or kept under control, systematic surveys of everyone in the infected area must be carried out at regular intervals over a period of years.

SURVEY OF BINTANG-BUIAM AREA.

Village.	Total Examined	Glands Punctured.	Tryps. Found.	Infection Rate.
Bintang ...	264	30	4	1·5%
Kassang ...	178	37	3	1·7%
Kanuma ...	160	24	5	3·1%
Jakkoi Sibrik ...	92	12	4	4·3%
Kandong ...	62	10	3	4·8%
Battending ...	50	6	Nil	Nil
Bullelai ...	74	19	2	2·7%
Opat & Jonak ...	95	13	2	2·1%
Sibanor ...	293	42	1	0·3%
Sikon ...	45	6	Nil	Nil
Kaima ...	90	5	2	2·2%
Barabuta ...	103	12	1	1·0%
Bajakor (Down) ...	90	13	6	6·6%
Bajakor (up) ...	204	24	4	2·0%
Kambon ...	25	4	1	4·0%
Buiam ...	601	55	10	1·7%
Kanfinda ...	222	49	9	4·0%
Total	2,648	360	57	2·2%

KANFINDA—SINTET AREA.

Group of Villages.	Total Examined	Glands Punctured.	Tryps. Found.	Infection rate.
Sangajor Group ...	169	23	9	5·3%
Bondally Group ...	568	60	24	4·2%
Sintet Group ...	752	154	50	6·6%
Total	1,489	237	83	5·5%

This area is heavily infected, resembling the Jokadu district on the North Bank, and the infection seems to have increased during the past few years, despite the presence of the hospital at Bwiam. Treatment centres at Kanfinda, Sangajor, Bondally and Sintet were started, and treatment of the cases is going on there at present.

SUGGESTIONS FOR FUTURE TRYPANOSOMIASIS SURVEYS IN THE GAMBIA.

It is obvious from the surveys of Lochhead and Bowesman and the present survey that a regular trypanosomiasis campaign covering the whole of the Gambia is urgently required. Other West African colonies, Gold Coast and Nigeria, and also French West Africa, have had an organised service working for some years and the results justify the labour expended. The present survey has only touched the fringe of the problem, but it has shown the deplorable conditions present in many areas of the Colony. The inhabitants of the Gambia are probably regarded as the most backward of all the African peoples in British West Africa and this is obviously due to centuries of malnutrition, neglect and disease among them.

A larger and more extensive medical service is essential, because not only trypanosomiasis, but the other great disabling diseases, such as malaria, venereal disease, yaws, trachoma, urgently require attention. But to be successful against these diseases it is also necessary to educate the people, not in book learning but in practical farming. The Gambian could be self-supporting in his own country if he were taught how to make the best use of his land and given the implements to do so. In this way the foundation of ill-health, malnutrition, would be broken down.

The improvement in public services in the Gambia may not be feasible until the post-war years, but it should come. Financial help will have to come from outside the colony itself, *e.g.* the Colonial Development Fund, as the revenue is not sufficient to provide essential services.

APPENDIX III.

Summary of Report on Infantile Mortality in Bathurst

by Dr. D. W. Horn.

1. *Historical.*

Infantile Mortality, which is defined as the number of deaths of infants under one year of age per one thousand live births, is one of the most important figures in a community's vital statistics, because it affords the most reliable index to the efficiency of the public health services of that community.

2. Graph I shows the variation in infantile mortality and the still birth rate since 1916.

From 1916 to 1924, the infantile mortality rate was on an average about 450. This high figure is sufficient indication of the inadequacy of sanitation at that time.

In 1925, a Maternity Service was begun, with antenatal and postnatal clinics; deliveries of babies were done "on district". The clinics had an immediate popularity, as shown on Graph I. In 1928 a branch clinic was opened, and in 1930, a ward for maternity inpatients was provided. The beneficial effects of the clinic are shown by the lowering of infantile mortality from 571 per 1,000 in 1924 to 220 in 1931.

The period from 1931 to 1935 was one of economic depression. Attendances at the clinic fell rapidly, and infantile mortality rose.

In 1934 there was an epidemic of Yellow Fever which resulted in the deaths of four Europeans and one African. An intensive sanitary campaign was immediately begun, and much new public health legislation was introduced. The effects of this are seen in the fall of infantile mortality from 1936 to 1940.

In 1941 however, infantile mortality rose sharply from 134 per 1,000 to 243.2, an increase of over 81%. In 1942 the figure fell very slightly, being 240.5 per 1,000 (up to October 1942).

II. Infantile Mortality.

Infant deaths are inevitably connected with infant sickness, so records were kept of all infants attending African Outpatients at Victoria Hospital, from August to November 1942. The following table shows the principal diseases seen in the infants:—

Disease.	Cases seen.	Percentages.
Subtertian Malaria ...	335	81·10%
Ascariasis	25	6·05%
Acute Bronchitis	18	4·36%
Scabies	11	2·66%
Gastro-enteritis	7	1·69%
Stomatitis	7	1·69%
Miscellaneous Diseases ...	8	1·96%
Total Cases seen	411	

Thus Malaria heads the bill with 81.10%. The diseases due to dirty housing conditions, namely Ascariasis, Scabies and Gastro-enteritis, together score 10.40%. Overcrowding and poor housing certainly play a part in the 4.36% due to Acute Bronchitis. Stomatitis with 1.69% is probably mainly due to subnutrition.

The above series is not sufficiently large or spread out over a long enough time, to give an accurate picture of infantile mortality over the year. The period included above is at the end of the rainy season when one would expect malaria to be more prevalent than at other times. But one would not expect malaria to be so prevalent as to cause more than four-fifths of all the illness of infancy.

2· Graph II shows the principal causes of infantile mortality from 1935 to 1942, and also the general malaria rate of the town.

Two diseases are mainly noteworthy, namely Tetanus and Malaria. Since 1935 the incidence of tetanus has fallen away almost to nothing. This is due to the prohibition of cattle in Bathurst and to the better standard of town midwifery since the Public Health Ordinance and Midwives Ordinance were passed in 1935.

Malaria however has increased sharply since 1938. In 1940 it caused 36.4% of all infants deaths; in 1942 it was rivalled only by the Respiratory Diseases. The incidence of malaria among the general population has increased steadily since the same year.

3. Examination of the monthly figures for rainfall and mortality reveals that the month of greatest rainfall is August, whereas the death rate (both infantile and general) and the stillbirth rate are highest in October. This interval of two months is exactly the time taken for a mosquito to be hatched, to pick up malarial infection and pass it on to a human being, and for the disease to develop in that human being.

III. Stillbirth Rate.

No detailed investigation into this was possible, due to the lack of staff and laboratory facilities. It seems probable however that malaria is again largely to blame, a view confirmed by the reports of previous writers. Other causes may be a slight degree of pelvic contraction that is commonly observed in Gambian women, and an increase in the incidence of syphilis.

Thus it is obvious that Malaria is the greatest public health problem from the point of view of waste of infant life in Bathurst today.

IV. Factors leading to the increase in Malaria.

1. The introduction of new strains of malaria parasite into Bathurst, against which natives of Bathurst have no immunity. These new strains were brought in by labourers from the protectorate, and by the large numbers of troops coming from other parts of West Africa.

2. The virulence of all strains of malaria parasite, whether imported or indigenous, must have been greatly increased by repeated passage through a population of non-immunes—*i.e.* the labourers and troops mentioned above, also the large number of Europeans entering Bathurst.

3. The presence of a large reservoir of infection in a non-immune population, leading to high incidence of infection amongst mosquitoes.

4. Insufficient mosquito control measures.

5. Lowered general resistance to disease of the populace, due to overcrowding, poor sanitation and subnutrition.

D. W. HORN,
Medical Officer.

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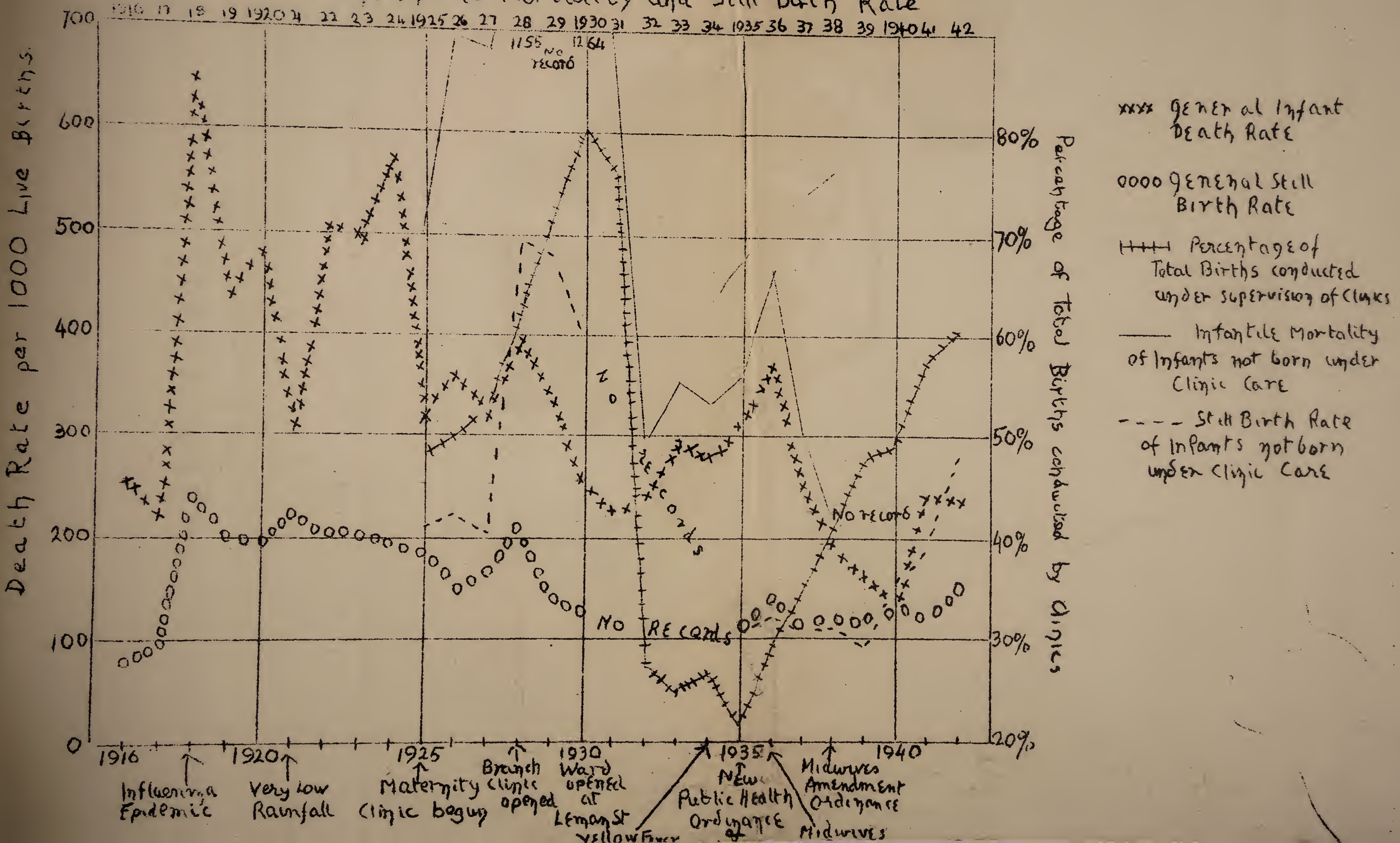
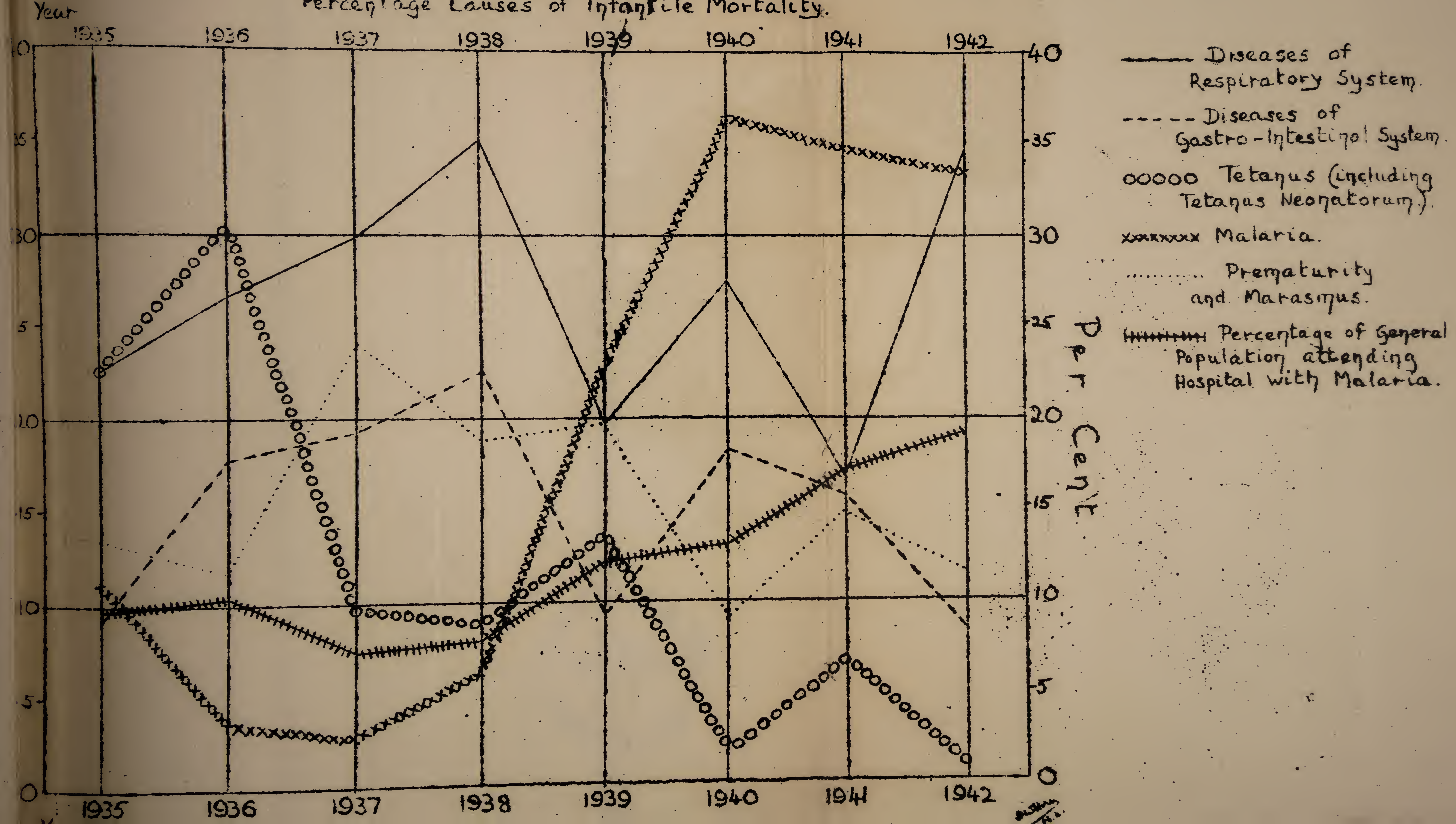
Graph I

Infantile Mortality and Still Birth Rate



Graph II

Percentage Causes of Infantile Mortality.



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